

the bowel, or some pressure exercised by the growth, I cannot say.

I was not anxious to be active in treatment, seeing how well the patient was during the time. But in any case it is well to record the fact I have here stated, as one of the unusual conditions which may attend the operation of opening the colon.

MALIGNANT TUMORS OF THE UPPER JAW.

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THE sarcomas which affect the jaws, especially the upper, form an interesting study both from a clinical and pathological standpoint. The prolongation of the Schneiderian membrane into the antrum, introduces an element into the centre of the superior maxillary, which is not found elsewhere in the skeleton, and thus renders it obnoxious to one or other of the many forms of carcinoma, that is, if we accept the theory regarding the epithelial origin of cancer.

The old primary malignant bone growths are of the connective tissue, and are sarcomas, as all the elements which enter into the formation of bone, even to the endothelial lining of the vessels belong to the connective tissue. In my opinion, it is at present impossible to correctly classify sarcomas, and if the microscopists be allowed to continue, their divisions, subdivisions and re-subdivisions of these tumors, and if it be true that every organ in the body has a sarcoma belonging to itself arising from different causes, and that "in order to discover the relative importance of these causes, the tumors of each tissue and organ must be studied separately," and if each pathologist is allowed to make his own arrangement, it will be perceived what a terribly conglomerate and labyrinthic affair will such an arrangement ultimately become, especially when it is remembered, that in the natural history of all tumors, one variety

¹Sarcoma and Carcinoma. By Henry Trentham Butlin, F.R.C.S., P. 11.

is liable to run into and overlap another. The minute diagnosis of sarcomata may be the delight of the microscopist, but is an abomination to the clinical surgeon. It cannot be otherwise than that uncertainty must always envelop these histological classifications because half a dozen of the so-called varieties of cells will often be found in one tumor. I have known spindle-cells, round cells, giant cells and even alveolar structure to exist in one jaw, and hanging to the end of the tumor, three perfectly innocent myxomatous growths, formerly called fibro-cellular (Paget), or more commonly nasal polypi.

The truth is, that in these far reaching days of science, the clinical or practical diagnosis of neoplasms is likely to be swallowed up by the more scientific and theoretical arrangement. Scientifically, the pure histological classification would be the best, if any agreement could be arrived at as to the nomenclature by the prominent microscopists of the world, which at present appears impossible and students and practitioners flounder from one authority to another in vain endeavoring to arrive at the truth. From these facts, as Müller has well said, "the microscopical and chemical analysis can never become the means of clinical diagnosis. It would be ridiculous to wish or to suppose this possible."

The surgeon desires to make his diagnosis before he cuts out the tumor; the microscopist delivers his opinion—in the majority of instances—after its removal, and if two of the latter scientists procure sections from the same tumor, there will be no guarantee that their examination will present a similarity of cell. Butlin says "since no physiological prototype of either of them (sarcoma and carcinoma) actually exists, it has been possible for each pathologist to decide for himself individually as to the grounds on which a distinction should be made." This is most true. I have known two sections of an abnormal growth to be made within twenty-four hours of each other and sent for examination to a professed expert. For one the report was, "innocent;" from the other, "malignant." I have sent three specimens of a tumor to three distinguished microscopists, and in due time have received answer from one, that

¹Billroth, Classification, Diagnosis and Prognosis of Tumors.

the growth was highly malignant; from the other two that it was perfectly bland. I have sent specimens of sarcomas to three microscopists, and have been informed by one that the growth was round celled; by another that it was (giant-celled) myeloid, and by the third, that it a bounded in caudate spindles with some alveolar structure. All of these last reports, no doubt, were true, the character of the cell varying in the different portions of the tumor from which the sections were taken. A sarcoma—to simplify matters—is a connective tissue tumor, filled with embryonic unripe cells—the nearer these approach the transitional and imperfect type, the more malignant the growth; the closer the resemblance to the normal standard (speaking according to the English classification and not that of Virchow) the more homologous the tumor. It makes little difference to my mind whether these cells are spindle-shaped, round, caudate, giant-sized or minute. I (especially in the upper jaw) always expect *recurrens in loco eodem alioque* and the ultimate death of the patient, especially if the disease is somewhat advanced at the time of operation, for although Gross in his exhaustive article has given a certain percentage of recoveries after operations for sarcoma of the long bones,¹ I am persuaded that the mortality after operations for jaw sarcomas is greater than that resulting from similar performances on the long bones. The conformation of the upper jaw, the immovable sutures by which the bones are united, favor extension of disease by continuity; this, with the large surface covered by epithelial structure both within and without, render it liable to every form of tumor, both homologous and heterologous. The projection of the fangs of the teeth into the alveoli thereby favoring the extension of primary dental affections to the bone, is another factor in the production of neoplasms of the jaw, and the certainty of their recurrence may be in a measure owing to the impossibility in some cases, to remove from the inequalities and sinuosities of the passages, every implicated cell; even the hot iron escapes them, be it ever so carefully employed. The malignant tumors of the superior maxillary that have come under my personal observation have been ten

¹American Journal of the Medical Sciences. July and October, 1879.

in number. Of the lower jaw I have treated three and operated upon two—all of these latter were sarcomas. Of course exostoses, caries, necroses and epules are excluded from this list, as are also the different forms of polypi, all of which diseases are more frequently encountered by the surgeon than sarcomas and carcinomas. Of the upper jaw tumors, speaking only by the clinical classification (for some of these cases occurred to me before the universal use of the microscope, six were myeloid (giant-celled sarcomas), and four were carcinomas; I am disposed to believe encephaloid. Although at the late stage in which they came under observation, it was impossible to make a very clear diagnosis, except where the fungous (fungous hæmatodes) growth with profuse hæmorrhage tended to confirm such a conclusion.

As the main object of this article is to point to clinical rather than microscopical facts which may be of service to the surgeon before he subjects his patient to operation, I cannot better detail the symptoms than by presenting them as they appeared in those cases which continued under observation and were operated upon; these were five in number, four being myeloid and one encephaloid. Of the five others whose cases did not present any encouragement for operation, I can only find any record of two, both of whom died within ten or twelve months. No doubt as is usual with such patients, the remainder moved from one surgeon to another, from cancer curers to astrologists, and from thence to hospitals, where they died. In the preparation of these cases I have endeavored to point out the leading characteristic clinical symptom and to recall the impressions they made upon my mind at the times when I was endeavoring to make my diagnosis.

CASE I.—I. V., æt. 49 years. Entered the Good Samaritan Hospital, St. Louis, on account of a tumor involving the upper jaw of the right side, and extending downward and forward into the mouth, forcing out the alveoli and teeth and growing with amazing rapidity. The tumor was turned to the left side and protruded sufficiently to evert the lower eyelid of that side. An oral examination revealed an irregular mass, resembling in many respects the gum from which it appeared to grow; it never bled, excepting after severe handling and then

but slightly; had rather a heavy but not carcinomatous odor, and appeared to involve the whole bone except the orbital plate. The patient's health was failing and an immediate operation was advised. On March 16, 1870, I removed the entire jaw, turbinated and palate bones. A different incision was made from that now generally adopted and the cut commenced at the right commissure of the lip and passed, with its concavity looking toward the nose, up to a short distance above the zygomatic arch in front of the ear. The second incision began at the termination of the first and continued under the eyelid, to the nasal bone. The bony connections were divided with saw and pliers, the attachments severed in the usual way, and the tumor twisted out with Fergusson's forceps. The alveolar process of the left upper jaw had also to be cut away. Hanging to the posterior surface of this growth were *three good sized ordinary nasal polypi*. There was no severe hæmorrhage, but the operation was tedious and the patient suffered from shock. He soon revived, however. The wound—as all facial wounds do—healed with remarkable rapidity, and I saw him two months after the operation, apparently completely cured, attending to his business. Upon examining the oral cavity, I could see no evidence of return, and yet I am disposed to believe from my subsequent reading and experience that the disease sooner or later made its appearance and ultimately destroyed his life. The diagnosis was “a subperiosteal myeloid tumor.” The clinical points upon which the opinion can be given are, I think, these: (1) There was no infiltration; (2) no fetor; (3) no hæmorrhage; (4) the integument covering the growth was healthy; (5) no glandular enlargement; (6) the naked eye appearance was similar to epulis;¹ (7) small portions of the tumor removed before the operation and cut carefully through, presented a striking similarity to suet or to be more precise, to a bit of marrow which, having been boiled, has been allowed to cool. This in itself is almost pathognomonic (*μυελος εἶδος*). In this case the clinical symptoms were exceptionally perfect and the diagnosis comparatively easy.

CASE II.—Mrs. W., æt. 42 years, applied to me for removal of a tumor situated on the anterior face of the left superior maxillary. It was soft and spongy, not very vascular, but was growing with considerable rapidity; it was not pedunculated, but sessile and very flat; some months before I had removed a somewhat similar looking, though

¹The late John Mason Warren, in his “Surgical Observations,” P. 64, makes the following remarks: “Myeloid tumors of the jaw at a late stage their existence are often distinguished with difficulty from that external affection called epulis.” In these days some authors style the giant-celled sarcoma as malignant epulis.

smaller growth, from the same locality and scraped the bone, supposing the tumor to be an ordinary fibrous epulis. I therefore snipped off a portion of this tumor, and sent it for examination to a specialist. The report informed me that the growth was "a giant-celled sarcoma, etc." I therefore set about performing a more thorough operation which was done on October 4, 1872. A portion of sound bone was removed with Hey's saw and the pliers, after dissecting the entire lip away. There was no further trouble, and a letter, bearing date August 11, 1887, informs me that there has been no tendency to return, the coming October being fifteen years since the operation was performed.

In this case the operation, although thorough, was small in comparison to those necessary to remove the entire bone. Nevertheless, the length of time that has elapsed without recurrence goes far toward establishing a precedent for early operation as well as the necessity of cutting through healthy bone in the removal of sarcomas.

CASE III,—This case was somewhat difficult to diagnose as to its specificity when brought to notice, but as to its malignancy there could be no doubt. It was a bad case to look at. The patient was 53 years of age, and when I saw him first in May 26, 1885, he had a tumor as large as a small-sized coconut projecting from the left side of his face. The skin covering this was inflamed and of a dusky hue, with an ulcerating spot in the centre. Herein lies one of the difficulties in making up the diagnosis between sarcoma and carcinoma. Was this redness that belonging to infiltration characteristic to cancer? or, was it due to the stretching of the integument due to the size of the tumor? In case No. I, the tumor was not so large, but the integument was of good color, this being a characteristic of sarcoma. The history of the case was this: about three months before the above date a swelling appeared in the left cheek, which increased rapidly until, supposing it to be a gum boil, it was lanced, discharging very little pus, but a good deal of blood. From this period the tumor grew with great rapidity, until it reached its present size, closing the left eye, rising above the left zygoma and projecting into the mouth at least half an inch below the cutting edge of the teeth on that side. The surface was soft and hard in spots, and here and there, the sensation presented was that of chondrifying sarcoma. The patient was in a terrible state of depression. He was told exactly the nature of the operation and what was to be expected; was advised to return home and take the advice of his relatives and friends and to write the results. Instead of writing he came in person and the operation was performed May 3, 1885. Tracheotomy was first done, the pharynx filled with sponges, the ether admin-

istered through a long tube fitted to the canula to prevent explosion during the use of the cautery. The incision was through the upper lip, around the nose to the inner canthus, and under the lid to the zygoma. This operation was long, bloody and tedious, the effort being made to make it as thorough as possible. The entire superior maxillary, palate and malar bones were extirpated, and though the patient required many hypodermics of brandy and ether, he did well. His rapid recovery surprised all who had seen him. He left New York for his home, where he was able to walk and drive and began to hope for a more perfect restoration, when in the hot weather in August he began to fail, and died of exhaustion on September 17, 1885. This case was one of encephaloid cancer beginning within the antrum without known cause. The patient lived not quite four months after the operation and was satisfied that his sufferings had been so much relieved, and that his life had been prolonged some months, free from that intense suffering that had characterized the disease before the bones were removed. This tumor—encephaloid or medullary—was not difficult to diagnose after its removal. The great bleeding, the entire involvement of every structure entering into the bone and cheek; the intense infiltration and glandular enlargement were the clinical symptoms—its naked-eye resemblance to brain matter also would class it as medullary tumor, although to be more advanced it should be demonstrated as “the soft variety of spheroidal celled carcinoma.”

CASE IV.—Mrs. M. C., aged 43, presented herself to me in November, 1885, with a tumor about the size of a small filbert projecting between the central incisors of the upper jaw; the gum had receded, the teeth were loosened and there had been occasionally slight bleeding. Otherwise there was nothing unhealthy about the woman. Here was a growth which I decided was a fibrous epulis, meaning thereby a fibroma, which sometimes may contain spindle cells which renders it liable to return. This tumor was cut off after the subcutaneous injection of cocaine, the periosteum removed and the bone scraped. The wound healed readily and the patient returned to her home in the country. On January 7 of this year she returned with the tumor reappearing, extending backward to the roof of the mouth and up along the nasal process of the superior maxillary, pushing out the lip and somewhat disfiguring the face. After etherization, I introduced a long knife under the lip and around the tumor, carrying its blade nearly to the internal canthus. This was followed by a profuse hemorrhage, which, after a time, was arrested by steadily pressing the nostril with the forefinger and thumb. Upon exploration I found the anterior

face of incisive fossa entirely destroyed, and the root of the nasal process also. To get at the healthy portion of the bone the cheeks had to be liberated from the jaw, and then, with a chisel and mallet, I removed the whole anterior face of the bone, the alveoli and the root of the nasal process. The specimen was examined and the diagnosis given of giant-celled sarcoma. Whether there will be further reappearance of the tumor I cannot say, but I am pretty certain that it will return.

CASE V.—This case is one of peculiar interest, because of the mixture of growths found in the bone and surrounding cavities. J. L., æt. 52, was sent to me on November 10, 1884, with a large tumor on the right side of his face. Three years before he fell, striking his spine upon a step. This greatly prostrated him and from that period he noticed an obstruction in the left nostril. In July, 1886, he applied to a surgeon who removed two nasal polypi at intervals of two weeks and towards the end of August others were extracted from the posterior nares. I mention these clinical facts to call attention to the presences of myxoma—fibro cellular, homologous or (whatever term may be necessary) polypoid growths, in connection with the sarcomas. This fact was also noted in Case I.

Upon examination I found a smooth, round, elastic tumor on the right side of the face, pushing forward the orbit, almost closing the eye and discoloring the lid. The integument covering the tumor was in a high state of inflammatory action. From the presenting symptoms an abscess of the antrum was suspected, therefore. A tooth was removed and the cavity explored. It was found diminished in size, but there was nothing but blood discharged, but I now discovered a growth blocking up the posterior nares. The abscess proved to be in the tissues covering the tumor and was opened at the external canthus of the eye, and about two and a half ounces of very fetid pus were discharged. In a day or two all the immediate symptoms were ameliorated, the swelling decreased, and the eye could be opened to very near its natural width. The exact size of the tumor could be made out. On the inside of the mouth there were no dendritic vegetations, the gum was not even reddened, though somewhat spongy, but there was a certain elasticity which was unnatural. There was neither adenoid or other surrounding inflammation. On November 19, 1886, I slit up the nose in the median line, dissected up the cartilage on the right side, and by means of a lithotomy forceps (which by reason of its spoon-blades was found very convenient) I removed a large fibroid polypus, occupying the nares on that side, and which from its pressure

had opened the wall of the antrum, from which with a scoop I removed a mass of soft pulpy material which was—to say the least—very suspicious in appearance. The entire cavity was then thoroughly cauterized and the parts washed with a solution of the permanganate of potash. The wound healed rapidly by first intention, and the patient went home much improved only to return in two months in a worse condition. There remained now nothing to be done but the complete extirpation of the bones on that side of the face. Mixed anæsthesia was used. Tracheotomy was performed, and as sometimes happens, there was some troublesome hemorrhage. The incision was the same as in Case III, through the lip, around the nose under the eye. The man was very weak after the operation, but rallied well and went home on February 23, 1886, apparently cured. The respite was of short duration. After six months the swelling began to return, this time without pain. He did not take to his bed until four days before his death, which occurred ten months after the second operation. The tumor proved to be central round-celled sarcoma, with many giant cells scattered throughout its structure.

From these cases the following clinical deductions may be drawn without regard to the microscopic examination, and though the number presented is very small, yet the conclusions arrived at may be of service in assisting others in preparing tables and experiences which ultimately may be of positive value.

1. Giant-celled sarcomas (myeloid tumors) are prone to affect the upper jaw more frequently than any other malignant growths.

2. The subperiosteal tumors are in their early stages difficult to diagnose from ordinary epules (fibrous and homologous).

3. Sections of the latter are much firmer than the former and contain more fibrous tissue.

4. Cut surfaces of myeloid growths resemble very closely sections of bits of marrow or suet.

5. Myeloid tumors do not bleed readily, in fact, can almost be handled with impunity, so far as bleeding is concerned. This experience is not that of some authors, but it is mine and must go for what it is worth.

5. The integument covering sarcomas of the jaw does not

infiltrate, marking a strong clinical contrast in this respect with carcinoma.

6. The integument covering sarcomas of the jaw is liable to inflame and suppuration and ulceration to ensue from distention and pressure of the diseased mass beneath. When this complication occurs the difficulties of diagnosis are materially increased.

7. The fibroid epulis is liable to degenerate, and at each recurrence to become more malignant.

8. In the majority of cases sarcomas of the upper jaw are very liable to destroy life—death generally occurring from asthenia.

9. The earlier and more complete the excision the longer the interval of immunity.

A CASE OF CHRONIC CEREBRAL ABSCESS (ANTE-MORTEM DIAGNOSIS).

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WAS consulted on August 25 of this year by John Reeve, white, male, æt. 26 years, on account of a swelling on the right side of his head. Found colossal fluctuating tumor filling out the right temporal fossa and fascia. Opened abscess behind the ear and into the mouth at processus coronoideus. About half a pint of thick, mushy, odorless pus discharged. Could find no erosion of temporal bone either with finger or probe. Insisted on chiseling into the sinus mastoideus, but patient refused. Disinfected and drained *lege artis*.

Anamnesis—latent stage. About one year ago patient suffered from pain and swelling around and behind the right ear. Shortly afterward he had a purulent discharge from right ear which has run continuously until the last two weeks, when the abscess began forming behind his ear and since which there has been no discharge from the ear. Right mem-